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Submission date: 30-Jan-2018 05:17PM (UTC+0700)

Submission ID: 908688172

File name: ISPHE_MARIA_YUANTARI_TURNITIN.pdf (265.1K)

Word count: 2801

Character count: 15516

EDUCATION FOR USING PESTICIDE BY SAFELY AND RIGHT TO THE CHILDREN OF FARMER

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Abstract

Introduction: Children are the future generation of farmers so culturally safe and healthy behavior in usage of pesticides should be established early. Based on the results of surveys and interviews of children of farmers, showing the results of 76.8% children do not know about pesticides, 88.5% do not know what is meant of pesticides, 61.5% do not know how to use pesticides and 69.2% do not know the dangers pesticides for the body.

Methods: This research was action research, beginning stages of Focus Group Discussion to the Principal and District Education Office Penawangan Grobogan in designing materials of pesticides and its danger. Furthermore implement and evaluate environmental education about the pesticides and its danger on 26 pupils in Curut elementary school

Results: Discussion of the results expected pesticide materials delivered to students by giving the concrete examples based on the problems faced by farmers in the region. Results of the evaluation of the delivery of the material by the book and flip chart on "Pesticides and danger" indicates that 87% of students were able to explain again about pesticides and the types, 85% know how to use the pesticides, 87% know how the storage and 90% know its danger to the body.

Key Words: Children of farmers, pesticides, education, environment

Introduction

Pesticides are chemical substances used to kill or control pests. The word of pesticide came from of the word of *pest* and *cida* with its meaning is killer. So simply said pesticides is pest killer. Pest for farmers has a very broad sense, namely mites viruses, bacteria, nematodes (worms that damage the roots), snails, mice, birds and other animals are considered damaging. (Agriculture Department, 2012)

In Curut, Purwodadi, the practice of farmer in using of pesticides are inconsistent by procedure. There are 25,6% farmers mix the pesticide near by the water resource, 30% farmers do not use special case to cleaning up the pesticides equipments, no consider the blow of wind on spraying time, 44.2% do not have a ventilated pesticide storage area, and 93% rooms was not locked. There is a 25.6% do not use labeled pesticides. There are some farmers who do not use the appropriate protective equipment standard, which are 53.3% did not use cap, 69.77% did not use gloves, 30.2% did not use a mask and 100% did not use boots.

Based on the results of surveys and interviews showed that the knowledge of pesticide among the farmer children still low. It shown by 76.8% of children have less information about pesticides, 88.5% have no information of insecticides, 61.5% did not know the usage of pesticides, 69.2% did not know the dangers of pesticides to the body. There are 40.4% children who do not yet know how to store the pesticides, 86.5% *answered* do not know how to dispose of pesticides,

40.4% did not know how to clean the appliance. Beside it, there are 55.8% did not know the protective equipment in agricultural land and 65.4% of children have never been told about pesticides.

Based on interview to the farmer children, the lack of their knowledge about pesticides were no education and information about pesticides from their teachers in schools. The content of planting curriculum has been *no* material on the dangers of pesticides and their impact on health and the environment.

Using pesticide could affect to the human health. Previous accident have occurred in Kanigoro Magelang. There were 10 people killed cause poisoning pesticides in July 2007. Chronic poisoning due to pesticides currently *the* most feared, because it can be carcinogenic toxic effects (formation of cancerous tissue in the body), mutagenic (genetic damage to future generations), and teratogenic (birth defects of the poisoned mother). Jenifer research in 2009, proved that raising risk of cancer among people who exposed by pesticides. Result showed that 88% pregnant woman exposed by pesticides and 55% pregnant woman contaminated by high pesticides in their body. (Rusiecki, 2009) Highly exposure of pesticides in pregnant woman that have a risk of hypertension could harm their pregnancy. (Saldana, 2009) Organophosphate pesticides influence development of neurotoxin and also metabolism in baby. (Adigun, 2010)

This research had applied education base of environmental with take a course about pesticides and usage to children in Grobogan district. With the expectation that negative effect from usage of pesticides can be avoid and children's health as a future generation can be raise.

Methods

Based on the aim of this research, this research was action research which done by activity and action to revise to be better by doing step of planning, implementation and evaluation. (Gunawan, 2004) This research took place in department of education area Penawangan sub district Grobogan district.

Planning step was done by focus group discussion among department of education Grobogan district and 39 *principals* to design course of pesticides and the danger. Secondly, applied and evaluated the environmental education of pesticides and the danger among 26 students in 6th grade of Curut primary school. In the evaluation, was done with giving questions to the students about pesticides to know the changing of knowledge about pesticides and the danger.

Results and Discussion

Based on the *result* of focus group discussion with department of education and principal about result of research before, farmers behavior of using pesticides and knowledge of farmer's child about pesticides, most of them participants agree if course about pesticides teach to the students in primary school. As the answer of the participant:

"Segeralah dikoordinasikan dengan Dinas Pendidikan untuk dimasukkan ke buku mulok sesuai jenjang kelasnya (take coordination immediately with department of education to take course about pesticides in local course content appropriate with their grade)" (FGD, WI)

As the problem of uses pesticides in society become a dangerous problem, that why the participant of FGD agree to immediately develop module of environmental education in usage of pesticides, as problem of pesticides usage become more unsafe and dangerous to society.

"Bahaya dari pestisida memang sudah disadari masyarakat, akan tetapi dari pihak petani sendiri takut akan menanggung kerugian produk (the danger of pesticides is already notice by society but from the farmers, the afraid of loss their quality of farming product)" (FGD, NgIk)

Majority of participants argue that course and design that showed in the book should interesting, the explanation of pesticides is complete with the examples.

"Dibuat buku modul yang lebih menarik gambar-gambar yang lebih menarik, jelas, diberikan contoh sesuai di lapangan. Dijelaskan pula tentang efek-efek yang lebih nyata sehingga petani memahami pestisida lebih paham (developed module that more interesting, pictures that interesting, clearly, have the example appropriate as in the field. Explain about the real effects so farmer can understand about pesticides)" (FGD, Lyr)

"Modul dijelaskan sedetail mungkin tentang jenis pestisida (nama barang dan dagangannya) dan bahayanya. Bagaimana cara menghindari bahaya tersebut sehingga anak tertanam untuk menghadapi pestisida yang benar (module should explain clearly about pesticides (real name and market name) and the danger. How to avoid the danger so children know how to facing pesticides)." (FGD, Klw)



Figure 1. Evaluation of pesticides ad the danger book by the participants of FGD

Related the important of course in environmental education about usage of pesticides that safe and correct, participants wanted that in deliver of pesticides and the danger book, every students in Penawangan district get the bood, especially for 4th, 5th and 6th grade.

".....kami harapkan modul diberikan di SD...(we hope that module can spread in primary school)" (FGD, Lyr)

"...buku bagus, sebaiknya pembagian untuk kelas... (the book is good, appropriate for class)" (FGD, Krmt)

The result of implementation was a delivered course of environmental education into pesticides and the danger book to 26 students' primary school of Penawangan sub district Grobogan district. Delivered the course begun with spread the book and explain by flip chart. Delivered the course begun with explain the means of pesticides, kinds of pesticides, how to use the pesticides with safe and correct, how to storage and the danger to human body. Majority the students was active gave the response in every course that delivered by make a question from the picture that showed in the book and flip chart.

The result of evaluation course delivery of pesticides and the danger showed that 87% students can repeat to explain about pesticides and the kinds, 85% can explain how to use a pesticides, 87% know how to storage the pesticides and 90% know the danger to human body.



Picture 2. Delivered course “pesticides and the danger”

Majority of principals argued that course that had been teaching appropriate with the condition of the society in usage pesticides to their plants. This showed that learning process that expected should based on region problem. Learning by problem did not design to helping teacher to give more much information to students. Learning by problem developed to help students developing their ability to think, problem solving, and intellectual skill; learn much role play adult people pass through their involvement in real experiences or simulation, and be a learner that autonomous and independent. (Muslim, 2000)

Most of the participant of FGD said that behavior of using pesticides in farmers was very dangerous because of frequencies was once in two days they do spray of pesticides to their melon. The reason of farmers was they doing the spray as a preventive from pest that could not destroy the plants.

Over of using pesticides can contaminated user directly that can poisoning the user. In this content, poisoning can be defined three type, that are minor acute poisoning, severe acute poisoning and chronic. Mild acute poisoning cause dizziness, headache, minor skin irritation, fatigue, and diarrhea Severe acute poisoning lead queasy, tremble, stomach stiff, hard breathing, more produce saliva, pupil become smaller and pulse beat higher. Furthermore, severe poisoning

can caused unconscious, stiff, and also cause death. Chronic poisoning harder to detected because have no specific symptoms. (Sinulingga, 2006)

This is proved by practice of using pesticides by melon's farmers in Grobogan district Curut and Wedoro village Penawangan Sub district, much of them that used pesticides not in appropriate such as 25.6% farmers mix the pesticides near fount, 30% of farmers did not used a special place to cleaning sprayer. 44.2% of farmers did not pay attention of wind direction, storage place of pesticides in room without any ventilation and 93% of room did not locked. 25.6% farmers still used pesticides without label. Safety equipments that used by farmers were not in standard and not complete in used. 53.5% did not used hat, 69.77% did not used gloves, 30.2% did not used mask and 100% did not used boot.

Teaching method was conceptual design pass through systematic procedures into organized teaching experience to get the aim of teaching and have a function as guide to planner learning to design and doing activities of teaching. (Sukayati, 2004)

Giving complete explanation about pesticides and the examples that used by local society was expected to give understanding based on daily problem. Learning model based on problems is an effective approach to learning process of high level thinking. This learning can help students to process information that they know before and develop their own knowledge about social world and around. This learning is match to develop basic knowledge although complex knowledge. (Sukayati, 2004)

Information media were book and flip chart, that was quite effective to raising the students knowledge about pesticides and the danger. Media is a physically tool to delivered content or education course. The benefits of media was make the process of learning become more efficient and interactive and also learning process can be two ways learning. Media make the students able to remembered about course that they ever attended. (Chomsin, 2008)

Based on Lawrence Green, knowledge is predisposing factor to lead changing of behavior. Lawrence Green also described about enabling factor is also become the variable to lead changing of behavior, that is from the availability infrastructure of supporting behavior.(Green, 1980) That is why behavior of safe and correct in using pesticides influence by better knowledge and the availability of information media that is book of pesticides and the danger to students in primary school that can fulfill necessary of society information especially students (farmer's child) about pesticides.

Result of research about necessary of information students to the availability collection showed that there was positively correlation and significant between necessary of information students with the availability collection in library with the correction value 0.98. Coefficient determination is 0.96. Which showed that necessary of information students can explain the availability collection in library of St. Pertus high school Sidikalang was 96%, whereas 4% explained by other factor that did not explain in this research.(Sihite, 2011) To support the

availability of information about pesticides, then was done delivered of 3.000 books "pesticides and the danger" to all students in 4th, 5th and 6th grade Penawangan sub district Grobogan district.

Closing

Environmental education about safe and correct of using pesticides really needed by students and can be accepted as a local course in education curriculum base on environmental. The Interactive learning with book and flip-chart "pesticides and its danger", really helping to achieve better learning result. It was proved by half of the students can re-explain of course that was teach (87%). Main tools support such book "pesticides and the danger" aims to wider the covered of socialization environmental education model in safe and correct of using pesticides.

Commitment of department education and principals to realist environmental education about using pesticides is influence to effect of education, which is raising the understanding of society in safe and correct of using pesticides. Development of environmental education model on using pesticides by school, really needed with adjust demand of development interactive learning students.

Acknowledgement

The authors would like to thank the Ministry of Education and Culture of Indonesia, which has helped to fund this research.

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